ED 087 884   CE 000 974

AUTHOR   Holland, John L.; And Others
TITLE   Final Report of the Careers and Curricula Program.
INSTITUTION   Johns Hopkins Univ., Baltimore, Md. Center for the
                Study of Social Organization of Schools.
SPONS AGENCY   National Inst. of Education (DHEW), Washington,
                D.C.
REPORT NO   165
PUB DATE   Dec 73
CONTRACT   NE-C-00-3-0115
NOTE   29p.

EDRS PRICE   MF-$0.75 HC-$1.85
DESCRIPTORS   Abstracts; Educational Finance; *Educational
                Programs; *Educational Research; *Educational
                Theories; *Program Descriptions
IDENTIFIERS   *Center for Social Organization of Schools

ABSTRACT
                The Center's Career and Curricula program bases its
work upon a theory of career development. The report presents
summaries of the theory upon which the program was based, of the work
accomplished by the program, and of the research conducted. It also
provides abstracts and ordering sources for the various reports
completed. The theory assumes that, in our culture, most persons and
environments fall into one of six categories: realistic,
investigative, artistic, social, enterprising, or conventional. It
further assumes people search for environments that will let them
exercise their skills and abilities, express their attitudes and
values, and take on agreeable problems and roles. Lastly, it is
assumed that a person's behavior is determined by an interaction
between his personality and the characteristics of his environment.
The work accomplished by the program consists of theoretical studies,
classification studies, applied studies, and related studies and
influences. The title of each, its source, and a brief abstract are
provided. The budget included $337,320 from the Federal government
and $30,000 from the University. (Author/AG)

REPORT NO. 165

December, 1973

FINAL REPORT OF THE CAREERS AND CURRICULA PROGRAM

John L. Holland, Dean H. Nafziger, Gary D. Gottfredson

The JohnsHopkins University

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Baltimore, Maryland

Introductory Statement

The Center for Social Organization of Schools has two primary objectives: to develop a scientific knowledge of how schools affect their students, and to use this knowledge to develop better school practices and organization.

The Center works through three programs to achieve its objectives. The Schools and Maturity program is studying the effects of school, family and peer group experiences on the development of attitudes consistent with psycho-social maturity. The objectives are to formulate, assess, and research important educational goals other than traditional academic achievement. The School Organization program is currently concerned with authority-control structures, task structures, reward systems, and peer group processes in schools. The Careers and Curricula program bases its work upon a theory of career development. It has developed a self-administered vocational guidance device and a self-directed career program to promote vocational development and to foster satisfying curricular decisions for high school, college and adult populations.

This report is the final report of the Careers and Curricula program.

Abstract

This report summarizes the work accomplished by the Careers and Curricula program. It presents a summary of the theory of careers upon which the program was based, summarizes the research conducted, and provides abstracts and ordering sources for the various reports completed.

Table of Contents

I. Introduction

This report summarizes the outcomes of the Careers and Curricula program sponsored by the Office of Education, National Institute of Education, Johns Hopkins University, and by the principal investigator for the period February, 1971 through November, 1973. The general goal of this program was to organize and explain our knowledge of vocational behavior from birth to death by exploring the usefulness of a theory of careers, and to create vocational devices, plans, and systems to help people adapt more successfully to vocational problems. So far the theory has been strengthened by more than 120 empirical tests and has led to some practical outcomes: (1) a well-established theoretical typology for understanding and organizing occupational data, (2) a self-directed vocational guidance simulation (The Self-Directed Search), (3) a comprehensive occupational classification scheme, (4) a self-directed vocational guidance system (The Self-Directed Career Program), and (5) the stimulation of related devices, career materials, and research.

The following sections summarize the theory that led to these outcomes, the main research findings, and the practical applications. Other sections summarize the funds expended for this program and list its published scientific or vocational products.

II. The Theory

The theory used to orient the work of the program was proposed by the principal investigator in 1959 in a journal article. This beginning was followed by more systematic presentations in book form (Holland, 1966; 1973). The following paragraphs summarize this theory of careers at the present time.[1]

The theory consists of several simple ideas and their more complex elaborations. First, we can characterize people by their resemblance to each of six personality types: realistic, investigative, artistic, social, enterprising, and conventional. The more closely a person resembles a particular type, the more likely he is to exhibit the personal traits and behaviors associated with that type. Second, the environments in which people live can be characterized by their resemblance to six model environments: realistic, investigative, artistic, social, enterprising, and conventional. Finally, the pairing of persons and environments leads to outcomes that we can predict and understand from our knowledge of the personality types and the environmental models. These outcomes include vocational choice, vocational stability and achievement, educational choice and achievement, personal competence, social behavior, and susceptibility to influence.

Four working assumptions constitute the heart of the theory. They indicate the nature of the personality types and environmental models, how the types and models are determined, and how they interact to create the phenomena—vocational, educational, and social—that the theory is meant to explain.

1. In our culture, most persons can be categorized as one of six types: realistic, investigative, artistic, social, enterprising, or conventional. The description of each type (see Chapter 2) is both a summary of what we know about people in a given occupational group and a special way of comprehending this information: It is a theoretical or ideal type. A *type* is a model against which we can measure the real person.

Each type is the product of a characteristic interaction between a variety of cultural and personal forces, including peers, parents, social class, culture, and the physical environment. Out of this experience, a person learns first to prefer some activities as opposed to others. Later, these activities become strong interests. Such interests lead to a special group of competencies. Finally, a person's interests and competencies create a particular personal disposition that leads him to think, perceive, and act in special ways. For example, if a person resembles the social type, he is more likely to seek out social occupations such as

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teaching, social work, or the ministry. He would be expected to see himself as social and friendly. He would be expected to have more social competencies (such as helping others with personal problems) than realistic competencies (such as using tools or understanding machines). He would value socially oriented problems or tasks: helping others, serving his community, upholding religion.

By comparing a person's attributes with those of each model type, we can determine which type he resembles most. That model becomes his *personality type*. Then we can also determine what other types he resembles. For example, a person might resemble a social type most, then an enterprising type, then the other types in descending order. His total resemblance to each of the six types forms a pattern of similarity and dissimilarity—the person's *personality pattern*. Thus we obtain a profile of resemblances that allows for the complexity of personality and avoids some of the problems inherent in categorizing a person as a single type. A six-category scheme built on the assumption that there are only six kinds of people in the world is unacceptable on the strength of common sense alone. But a six-category scheme that allows a simple ordering of a person's resemblance to each of the six models provides the possibility of 720 different personality patterns.

To estimate a person's profile or personality pattern, we can use one of several methods: a person's scores on selected scales from interest and personality inventories, his choice of vocation or field of training, his work history or his history of preemployment aspirations, or combinations of these data. For example, certain scales of the Vocational Preference Inventory, the Strong Vocational Interest Blank, and the Self-directed Search have been designated as estimates of the types. The procedure is to have a person take an inventory, score it, and profile the appropriate scales. The profiles can then be interpreted by applying the descriptions of the types.

2. *There are six kinds of environments: realistic, investigative, artistic, social, enterprising,* and *conventional.* Each environment is dominated by a given type of personality, and each environment is typified by physical settings posing special problems and stresses. For example, realistic environments are "dominated" by realistic types of people—that is, the largest percentage of the population in the realistic environment resembles the realistic type. A conventional environment is dominated by conventional types.

Because different types have different interests, competencies, and dispositions, they tend to surround themselves with special people and materials and to seek out problems that are congruent with their interests, competencies, and outlook on the world. Thus, where people congregate, they create an environment that reflects the types they are, and it becomes possible to assess the environment in the same terms as we assess people individually. One method of accomplishing this task is to count the number of different types in an

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environment. The distribution of types is then converted to percentages of the total number of people in the environment. The environment is represented by six percentages and is interpreted by the environmental formulations given in Chapter 3.

3. *People search for environments that will let them exercise their skills and abilities, express their attitudes and values, and take on agreeable problems and roles.* Realistic types seek realistic environments, social types seek social environments, and so forth. To a lesser extent, environments also search for people through friendships and recruiting practices. The person's search for environments is carried on in many ways, at different levels of consciousness, and over a long period of time. The personality types epitomize some common ways in which people develop in our culture. They also illustrate how personal development channels goals, vocational choices, and mobility.

4. *A person's behavior is determined by an interaction between his personality and the characteristics of his environment.* If we know a person's personality pattern and the pattern of his environment, we can, in principle, use our knowledge of personality types and environmental models to forecast some of the outcomes of such a pairing. Such outcomes include choice of vocation, job changes, vocational achievement, personal competence, and educational and social behavior.

These four key assumptions are supplemented by several secondary assumptions that can be applied to both a person and his environment. These include the following:

Consistency. Within a person or an environment, some pairs of types are more closely related than others. For example, realistic-investigative have more in common than conventional-artistic. And degrees of consistency or relatedness are assumed to affect vocational preference—realistic-investigative should be more predictable than realistic-social.

Differentiation. Some persons or environments are more clearly defined than others. For instance, a person may closely resemble a single type and show little resemblance to other types, or an environment may be dominated largely by a single type. In contrast, a person who resembles many types or an environment that is characterized by about equal numbers of the six types would be labeled undifferentiated or poorly defined.

Congruence. Different types require different environments. For instance, realistic types flourish in realistic environments because such an environment provides the opportunities and rewards a realistic type needs. Incongruence occurs when a type lives in an environment that provides opportunities and

rewards foreign to the person's preferences and abilities—for instance, a realistic type in a social environment.

Calculus. The relationships within and between types or environments can be ordered according to a hexagonal model in which the distances between the types or environments are inversely proportional to the theoretical relationships between them. This spatial arrangement provides explicit definitions of both consistency (three levels) and congruence of person and environment (three or more). In this way, the internal relationships of the theory are defined and organized by a single geometrical model (see Figure 3, page 23).

The secondary concepts have two purposes: to improve the predictions obtained by the main concepts and to substitute degrees of consistency, differentiation, and congruence for the all-or-none definitions of the same concepts provided earlier (Holland, 1966b).

At this time, the theory and its classification have undergone 122 empirical investigations, of which only 8 have yielded only negative data. Seventeen of the total 122 studies were produced by the present program.

III. Research Summary

The work and influence of this research program is summarized in four tables: (1) theoretical studies, (2) classification studies, (3) applied studies, and (4) related studies and influences. Each table lists the research reports or products for a given topic, where they may be obtained, and what they mean or what they may be used for. Only the main outlines are summarized for each table. For a full account, the reader must see the original reports, products, or books.

Theoretical Studies

Table 1 lists the theoretical studies performed. All six studies had generally positive outcomes. Of these studies, 5 and 6 are perhaps most important. Study 5 demonstrated that the hypotheses about the interaction of students and their college environments (major field) were sust 'ned; that is, a student is most satisfied when his typological code resembles the code of his field of study. Study 6 shows that the interaction of high school students and six vocational simulations(Krumboltz Work Kits) conforms largely to theoretical expectations. This elaborate, carefully structured experimental study was a large scale test of nearly all hypotheses about person-environment interactions in the theory. In short, these studies lend strong support to the main person-environment congruency hypothesis and do so for large diverse samples of both sexes.

Classification Studies

All six classification studies have provided positive and useful information. In Table 2, studies 1 and 2 indicate that the original occupational classification could be extended to every occupation in the

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Table 1

Theoretical Studies

Title	Source	Abstract
1. An Extension of the Similarity-Attraction Hypothesis to the Study of Vocational Behavior (R. Hogan, R. Hall, E. Blank)	Journal of Counseling Psychology, 1972, 19, 238-240	Investigates the relation between the similarity of interests and likeability, supporting the validity of some assumptions of Holland's theory of careers.
2. A Structural Analysis of Holland's Personality Types Using Factor and Configural Analysis (K.J. Edwards and D.R. Whitney)	Journal of Counseling Psychology, 1972, 19 136-145	Supports the relationships among Holland's personality types, clarifies the characteristics of each type, and extends Holland's hexagonal model to new domains of assessment.
3. Do Occupational Perceptions Become More Differentiated with Increasing Age? (K.J. Edwards, D.H. Nafziger, J.L. Holland)	Journal of Vocational Behavior, 1973, in press	Shows that VPI profiles become more differentiated with age.
4. Student Perceptions of Occupational Congruency (G. D. Williams)	CSOS Report No. 156, June 1973	A student's type and his occupational perceptions tend to be in accord with the theory for boys but not for girls.
5. An Experimental Study of the Reaction of High School Students to Simulated Jobs (S.T. Helms and G.D. Williams)	CSOS Report No. 161 November, 1973	Supports the person-environment congruency hypothesis for large samples of boys and girls.
6. Student-College Congruency as a Predictor of Satisfaction (D.H. Nafziger, J.L. Holland, G.D. Gottfredson)	CSOS Report No. 163. December, 1973	Shows that college students are most satisfied when their typical codes resemble their fields of study, supporting the congruency hypothesis.

Table 2

Classification Studies

Title	Source	Abstract
1. A Psychological Classification of Occupations (J. L. Holland, M. C. Viernstein, H. Kuo, N. L. Karweit, Z. D. Blum)	Journal Supplement Abstract Service, APA, 1972, 2, 84	Presents an occupational classification for practical and theoretical use.
2. The Extension of Holland's Occupational Classification to All Occupations in the Dictionary of Occupational Titles (M. C. Viernstein)	Journal of Vocational Behavior, 1972, 2, 107-121	Presents two methods for extending Holland's occupational classification to include all occupations in the Dictionary of Occupational Titles.
3. Applying an Occupational Classification to a Representative Sample of Work Histories (J. L. Holland, A. B. Sørensen, J. P. Clark, D. H. Nafziger, Z. D. Blum)	Journal of Applied Psychology, 1973, 58, 34-41	Supports the use of the classification as a valuable tool for ordering and predicting work histories.
4. A Markov Chain Analysis of the Movement of Young Men Using the Holland Occupational Classification (D. H. Nafziger)	Journal Supplement Abstract Service, APA, 1973, 3, 18	An elaborate mathematical analysis does not improve upon the application of the classification in predicting job movement.
5. Applying an Occupational Classification to a National Representative Sample of Work Histories of Young Men and Women (D. H. Nafziger, J. L. Holland, S. T. Helms, J. M. McPartland)	CSOS Report No. 132 ERIC # 065 675	Classification works for both young men and young women.
6. Cluster Analyses of the SVIB, MVII, and Kuder OIS as Tests of an Occupational Classification (D. H. Nafziger, S. T. Helms)	Journal of Applied Psychology, 1973, in press	Cluster analyses of SVIB, MVII, and Kuder OIS produce clusters that closely resemble the classification.
7. Some Recent Evidence (D. H. Nafziger)	Paper presented at APGA, San Diego, 1973	Summarizes recent tests of classification.

Dictionary of Occupational Titles and that the psychological information upon which the classification was based also incorporated much objective job environment data. Studies 3 and 5 indicate that the classification can be used to organize and interpret the work histories of the average person as well as the work histories of more privileged groups (college students and professionals). Study 4 shows that an elaborate mathematical analysis (Markov chain analysis) fails to improve upon the regular application of the classification. And study 6 reveals that when the interrelations among the scales of the Strong, Kuder, and Minnesota Vocational Interest inventories are subjected to a standard clustering procedure, they produce a clustering or grouping of occupational scales that closely resemble the present classification. In short, the classification is supported by a wide array of subjective and objective data from high school, college, and employed adult samples of unrepresentative and representative populations. Study 7, which was presented to a national meeting of counselors, summarizes the recent research about the classification.

The theoretical work has led to several practical products and reports showing vocational counselors and practitioners how to use the outcomes of this program. In Table 3, Reports 3, 4, and 7 show vocational counselors and others how to use the occupational classification to help students and to organize occupational materials or whole vocational systems.

Report No. 5, in Table 3, summarizes the development and partial validation of a diagnostic system for tailoring vocational assistance to a person's particular vocational needs, and shows counselors how to use the diagnostic system in vocational counseling or to amend computer-assisted vocational guidance systems so that such systems are more sensitive to a person's vocational needs.

Table 3

Applied Studies and Products

Title	Source	Abstract
1. A Guide to the Self-Directed Career Program: A Practical and Inexpensive Vocational Guidance System (J.L. Holland, J.H. Hollifield, D.H. Nafziger, S.T. Helms)	CSOS Report No. 126, March, 1972. Eric #064 516	Provides complete instructions for implementing a self-directed vocational guidance system, evaluating the system, and using available materials within the system.
2. An Evaluation of the Self-Directed Search: A Guide to Educational and Vocational Planning. (T. Zener, L. Schnuelle).	CSOS Report No. 124, February, 1972 Eric # 061 458	Provides experimental support for the SDS vocational guidance tool.
3. The Development and Current Status of an Occupational Classification (J.L. Holland)	APGA paper, San Diego, 1973	Summarizes previous and current work on and results of the classification.
4. Practical Applications of the Holland Occupational Classification in Counseling (S.T. Helms)	APGA paper, San Diego, 1973. In Communique, Eric.Caps, Vol. 2, 9	Shows counselors how to apply the classification to organize materials and provide effective guidance.
5. A Diagnostic Scheme for the Specification of Vocational Assistance (J.L. Holland, D.H. Nafziger,G.D. Gottfredson.	CSOS Report No. 164, December, 1973	Provides some simple signs for distinguishing good and poor decision-makers.
6. A Note About the Validity of the Self-Directed Search (J.L. Holland, D.H. Nafziger)	CSOS unpublished report	Shows that the scales of the SDS correlate with scales of other guidance and aptitude instruments.
7. Some Implications of Holland's Theory for Vocational Guidance (K. F. Taylor)	Out-of-print	Explores possible applications of the theory of careers.

Reports 2 (Table 3) and 8 (Table 4) represent large and small scale evaluations of a vocational simulation device (The Self-Directed Search) developed by the principal investigator. The results of both investigations are positive and generally unequivocal. The SDS works (has desirable effects upon high school students) as planned and has the positive relationships with the Kuder Preference Record, Thurstone Temperament Schedule, and other tests which were assumed earlier (Holland, 1966).

Aside from the theory itself and its classification scheme, the Self-Directed Career Program is perhaps the most important practical guidance device. The program was installed in a Baltimore City high school and achieved good results. Report No. 1 in Table 3 is a manual which describes the system and how to implement it, evaluate it, and integrate additional common guidance materials. A maximum number was reproduced for distribution under the grant; then, Science Research Associates produced 3,000 copies without charge, because the SDC program advocates the use of SRA products as well as those of other publishers. At this time, users must secure the SDC manual through the ERIC System.

Related Studies, Reports, and Outcomes

The principal investigator has undertaken independently of this program, before this program, or concurrently with it, a number of other projects, tasks, or developments. In addition, other investigators have been engaged in trying out the same or closely related ideas growing out of the same theory. Table 4 is a selected sample of this work.

The Self-Directed Search, Report No. 1, simulates the vocational counseling process with a pair of booklets. The assessment booklet provides a structured self-assessment. The occupations booklet, executed in the same terms, helps a person see what occupational groups require people like

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Table 4

Related Studies and Influences

Title	Source	Abstract
1. The Self-Directed Search (J. L. Holland)	Consulting Psychologists Press., 1970	Provides an inexpensive and easily administered vocational guidance experience.
2. A Theory-Ridden, Comp- uter-less, Impersonal Vocational Guidance Sys- tem (J. L. Holland)	Journal of Voca- tional Behavior, 1971, 1, 167-176	Explains the develop- ment and practical application of the Self-Directed Search to potential users.
3. A Spatial Configuration of Occupations, (N. S. Cole, D.R. Whitney,J.L. Holland)	Journal of Vocation- al Behavior, 1971, 1, 1-9	Shows relationship of occupations in a theor- etical model
4. A Merger in Vocational Interest Research: Ap- plying Holland's Theory to Strong's Data (D.P. Campbell, J.L. Holland)	Journal of Vocation- al Behavior, 1972, 2, 353-376	Shows how Holland's typology can help in the organization of the SVIB.
5. Making Vocational Choices: A Theory of Careers (J. L. Holland)	Prentice-Hall, Inc., 1973	Further explores and explains a theory of careers.
6. Vocational Preferences, (J. L. Holland) in Handbook of Industrial and Organizational Psychology (M. D. Dunnette, Ed.)	Rand/McNally, in press	Summarizes current knowledge of voca- tional preference and interests for indus- trial and organiza- tional psychologists.
7. Some Practical Remedies for Providing Voca- tional Guidance for Everyone (J. L. Holland)	Invited Address at the 23rd Annual Con- ference of the Minnesota State- wide Testing Programs, Minneapolis, September 20, 1973 (CSOS Rpt. No. 160, November, 1973)	Shows the need for using impersonal guidance sys- tems and reorganizing many aspects of the delivery of vocational guidance.

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Table 4
(continued)

Title	Source	Abstract
8. Increasing Vocational Information Seeking Behaviors of High School Students (R. E. Redmond)	Ph.D. Dissertation University of Maryland, 1972	SDS "influences the intent and performance of vocational information seeking."
9. Holland's Self-Directed Search: Development and Evaluation of an Australian Form (M. E. Long)	Unpublished term paper, Psychology Dept. Univ. of Melbourne, 1972	With slight revision, SDS works in Australia
10. Form E (Easy) of the Self-Directed Search	Consulting Psychologists Press, Palo Alto, Calif. 1973	SDS was rewritten in 4th grade language for adolescents and adults who are poor readers.
11. Congruence of Basic Personal Orientation with Vocational Training (S. A. Gesinde)	Doctoral Dissertation Teachers College Columbia University, 1973	SDS works in Nigeria.

himself. Report No. 2 is a first account of the SDS.

Reports 3 and 4 in collaboration with others provide data about the

hexagonal model used to organize the classification, and how well the

constructs in the SDS classify occupations in the Strong Vocational

Interest Blank archives.

Report No. 5, Making Vocational Choices, is a major revision of the

Psychology of Vocational Choice (1966). Report No. 6 is a textbook

chapter on the same topic. Report No. 7 is a talk about improving current

vocational and career education activities.

Reports 8 and 9 are experimental studies of the effects of the SDS

upon students in Maryland and Australia. Both studies are generally

positive.

IV. Budget and Staff

This program has received from the Federal government about
$337,320 for the period May 20, 1970 through November 30, 1973. For the
same period, the Johns Hopkins University provided $25,741 to 30,000.
Shifting fiscal years, cost sharing practices, carry-over practices, and
other changes make it difficult to provide a precise accounting.

Table 5 shows in more detail the staff and funding from May, 1970
through November, 1973. More specific accounting has been provided in
regular monthly reports.

Table 5

Budget and Staff Information

May 1970 - January 1971 ($20,000)

    J. L. Holland (3 months)

    M. C. Viernstein (5 months), Research Assistant

    K. F. Taylor (4 months), Visiting Scientist

    L. B. Schnuelle (7 months)

    B. Skellie (3 months), Graduate Student

    (Supported for this period by Administrative funds, perhaps $20,000)

February 1971 - November 30, 1971 ($54,635)

    J. L. Holland (5 months)

    T. L. Baldwin (6 months)

    L. B. Schnuelle (10 months)

    M. C. Viernstein (Part-time, 50%)

December 1971 - November 30, 1972 ($62,685)

    J. L. Holland (6 months)

    D. H. Nafziger (12 months)

    S. T. Helms (5 months)

    G. D. Williams (3 months)

    L. B. Schnuelle (1 month)

December 1, 1972 - November 30, 1973 ($200,000)

    J. L. Holland (6 months)

    S. T. Helms (10 months)

    D. H. Nafziger (12 months)

    G. D. Williams (10 months)

    G. D. Gottfredson (4 1/2 months)

    Secretary (2 months)

V. Publications

All reports or publications required under the grant or contracts have been published in scientific journals, archives, or made available through the ERIC System.   Tables 1-4 indicate where all reports or products can be obtained.   In addition, the following abstracts are provided for all studies performed under the grants and last contract.

Abstracts

CSOS Rep. No. 90   A Psychological Classifi-   John L. Holland
November 1970   cation of Occupations   Mary C. Viernstein
ERIC # 044 534   Hao-Mei Kuo
68 pages   Nancy L. Karweit
                                                           Zahava D. Blum

An occupational classification for practical and theoretical use is presented. The classification rests upon a theory of personality types and includes 431 common occupations which comprise about 95% of the U. S. labor force. Each of the classification's six main classes (Realistic, Investigative, Artistic, Social, Enterprising, and Conventional) includes five to sixteen subclasses such as Realistic-Investigative-Artistic, Realistic-Investigative-Social, etc. With each subclass, occupations are arranged according to the number of years of general educational development required to perform them. The arrangement of main classes and subclasses is defined empirically and is consistent with the classification's theoretical base. The arrangement of classes also makes it possible to estimate the psychological relatedness among occupations. The construction of the classification, an evaluation of its usefulness, and some illustrations of its potential practical value for vocational guidance, occupational research, vocational education and social science are outlined.

CSOS Rep. No. 100   ⋅   The Extension of Holland's   Mary C. Viernstein
April 1971   Occupational Classification
ERIC # 051 420   to all Occupations in the
22 pages   Dictionary of Occupational
                             Titles

Two methods are presented for extending Holland's occupational classification to include all occupations in the Dictionary of Occupational Titles (DOT).
    Holland's classification is based on a theory of personality types; occupations in the classification are organized into six major categories (Realistic, Investigative, Artistic, Social, Enterprising, and Conventional) and subcategories using the same concepts.
    The methods given in this article enable translation from any DOT occupational code (a six digit number) into the corresponding Holland Occupational code.

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The first method is essentially an application of Bayesian statistics to 399 occupations in Holland's Occupational Classification. The second method was developed by using the definitions of each DOT group (first three DOT digits) and assigning the Holland code which seems theoretically consistent with the DOT definition.

The conversion methods are tested and compared on four occupational samples. An evaluation of the usefulness of the methods is given.

CSOS Rep. No. 103   A Structural Analysis of Holland's   Keith J. Edwards
June 1971   Personality Types Using Factor and   Douglas R. Whitney
ERIC # 051 307   Configural Analysis
19 pages

A sample of 358 men and 360 women took the Self-Directed Search, a vocational guidance tool developed by Holland based on his theory of vocational choice. Data from the sample were subjected to factor and configural analysis in an attempt to verify the relationships among Holland's personality types, to clarify the characteristics of each type, and to extend Holland's hexagonal model to new domains of assessment.

The results of the analyses offer strong emprical support for the hexagonal arrangement of the personality types, and also support the organization of the SDS and Holland's Occupational Classification.

CSOS Rep. No. 105   An Extension of the Similarity-   Robert Hogan
June 1971   Attraction Hypothesis to the   Robert Hall
ERIC # 052 391   Study of Vocational Behavior   Esther Blank
8 pages

This study investigated the relationship between similarity of interests and likability. The method used was such that the results could be compared directly with previous research conerning the effects of similarity of attitudes or personality on likability. A strong (eta$_{av}$ = .81) positive relationship was found between interest similarity and rated attraction. The implications of these findings for a major theory of vocational behavior were discussed.

CSOS Rep. No. 119   Applying an Occupational   John L. Holland
November 1971   Classification to a   Aage B. Sørensen
ERIC # 060 184   Representative Sample of   Judith P. Clark
25 pages   Work Histories   Dean H. Nafziger
                                               Zahava D. Blum

In this paper, the Holland Occupational Classification is applied to a national sample of retrospective work histories (N = 973) in order to (a) test the predictive efficiency of the classification, and (b) test related hypotheses from Holland's theory of careers. Analyses were performed by organizing and reorganizing the work histories according to the classification.

The classification appears to order lower level occupational histories in an efficient way, well beyond chance. Also, all three letters in the Realistic code appear to have predictive validity. The testing of the hypotheses from the theory of careers suggests that the theory can be applied to both adult work histories and vocational choices of high school and college students.

CSOS Rep. No. 124   An Evaluation of the Self-Directed   Thelma B. Zener
February, 1972   Search: A Guide to Educational and   Leslie Schnuelle
ERIC # 061 458   Vocational Planning
70 pages

This report is an evaluation of the Self-Directed Search (SDS), a self-administered vocational counseling experience. The sample v₊ⱼ a total of 1,092 students in the 10th, 11th, and 12th grades in four high schools. Three treatment groups were used: (1) a group that took the regular, published version of the SDS, (2) a group that took a version of the SDS which did not contain the "self-directed" aspects, and (3) a control group that received no treatment.

Evaluate criteria were selected that would assess the special effects of the SDS as well as the effects commonly expected from more typical vocational counseling procedures. The results of the evaluation were:

1) Both versions of the SDS were effective in increasing the number of occupations being considered. The students who took the published version of the SDS were considering more appropriate occupations (based on their activities, competencies, interests and self-ratings) than those who took the non-self-directed version.

2) Both versions of the SDS were effective in increasing satisfaction and certainty about vocational plans. Students taking either version of the SDS reported feeling more satisfied with their current occupational choice. Students taking the published version reported less need to see a counselor immediately. The control group indicated less satisfaction and certainty by expressing a greater need for information about specific jobs and training programs.

3) The published version of the SDS was more effective in increasing students' understanding of the theory behind the SDS than the non-self-directed version.

4) The effectiveness of both versions of the SDS was evaluated as moderately positive by the students themselves.

CSOS Rep. No. 126   A Guide to the Self-Directed Career   John L. Holland
March, 1972   Program: A Practical and Inexpensive   John H. Hollifield
ERIC # 064 516   Vocational Guidance System   Dean H. Nafziger
45 pages   Samuel T. Helms

This report presents the Self-Directed Career program, an inexpensive program designed to provide vocational guidance to all high school students, college students, and adults who desire it. The report discusses the need for such a program, the costs involved, the materials required, and how to use them. Appendix A provides some of the basic and supplementary materials, plus source information for other materials. Appendix B provides suggestions for evaluation techniques that counselors can apply to evaluate the success of the program.

Holland's occupational classification was used to analyze the work histories of a national, representative sample of young men and women age 14-24. This study extended previous tests of the classification in three ways: 1) it was applied for the first time to a national, representative sample of women; 2) for the sample of men, three-year longitudinal data of work histories rather than retrospective records were used; and 3) analyses of occupational change and stability were performed by assigning scores to different occupational categories according to their psychological relatedness.

Codes were assigned to occupations according to Holland's classification system and hypotheses formulated from the theory of vocational behavior. Hypotheses tested were concerned with the psychological orderliness of occupational changes, the relationship between the orderliness of occupational experiences and aspirations, the relationship between consistent occupational codes and the stability of work histories, and the similarities of work histories among members of the same family.

The analyses supported the usefulness of the occupational classification for organizing the work histories of both young women and young men. When applied to the data, the classification reflected the lawful and regular patterns of job changes for both sexes. Efficient predictions were possible for forecasting the category of later jobs based on knowledge of a person's earlier job. There was significant agreement between the categories of a person's current occupation and vocational aspiration. The consistency of occupational code was found to be related to job stability for whites but not for blacks. General Educational Development (GED) approximated the Duncan SES Index and the NORC Prestige Scale. The categorization of family members based on occupational codes provided some support for the hypothesis that personality types are attracted by similar types and types seem to produce similar types.

This paper compares Holland's occupational categories with groups of occupations that result from the application of McQuitty's Iterative, Intercolumnar Correlational Analysis to the scales of the SVIB, MVII, and Kuder OIS for men and women. The results indicate that clusters of occupations exist that are internally consistent, and these usually agree with the groups of occupations in Holland's classification. The hierarchical structure of the clusters follows the hexagonal ordering of Holland's occupational categories that has been suggested in other studies. In addition, the usefulness of all three letters in Holland's occupational classification was demonstrated.

The perception of occupations plays a key role in many vocational
behaviors and in theories of vocational development. This study hypoth-
esizes that occupational perceptions become more specific--and thus more
useful--with age.

This hypothesis was tested by using latent root analysis and minimum
residual factor analysis to analyze the intercorrelations among six
Vocational Preference Inventory (VPI) scales for five large and diverse
samples--elementary school students, rural high school seniors, college
freshmen, employed salesmen, and employed women.

Both analyses supported the hypothesis. The results are discussed
in relation to those of Cureton (1970), and the implication is drawn that
occupational perceptions may be used to estimate a person's level of voca-
tional development.

The present study used the Holland occupational classification and
Markov chain analysis for describing and predicting career patterns of
young men. Models of movement among the six categories of the Holland
classification were derived for four groups of young men (N = 5,225) who
were divided according to race and age. In short, this report provides
(1) Markov chains of the career patterns for four groups of young men,
(2) tests of the predictive validity of the chains, and (3) comparisons
of the four race-age groups using the Markov models.

Some statistically significant and important differences occurred
among the four groups both in the patterns of career transitions and in
the distribution of individuals among the six Holland categories at the
time of the initial interview. In general, younger men showed a narrow
range of occupational experience. For black men, the narrow range of
experience persisted for the older group. Older white men held jobs in
a broader range of occupational categories. And, they were more stable
in their initial occupational categories than the other groups.

An attempt to establish the predictive validity of two of the four
models was performed. The Markov models for older white males and older
black males were used to predict patterns of movement and occupational
categories of the ten-year transitions for a second sample. These
attempts were largely unsuccessful, indicating that the derived models
could not be generalized to any real extent.

In general, the use of the Markov models did not improve the pre-
dictive efficiency of the Holland occupational classification. The most
efficient and parsimonious strategy was to predict that the subjects
would maintain the Holland category of their initial occupation.

CSOS Rep. No. 156   Student Perceptions of   Gerald D. Williams
June, 1973   Occupational Congruency
ERIC #
23 pages

   This paper examined student perceptions of occupational congruency
using Holland's Realistic, Investigative, Artistic, Social, Enterprising,
and Conventional personality and environmental types. Using the hexagonal
arrangement of the types, congruency levels were established. Student
perceptions were examined in the areas of activities, values, interests,
traits, and competencies. It was hypothesized that students would perceive
congruency with occupational types that corresponded to their personality
types and that the degree of perceived congruency would parallel the
levels empirically established from the hexagonal model.
   None of the hypotheses in the study was supported for the high school
girls. However, the males tended to perceive occupational congruency
overall, and congruency within activities, values, interests, and traits,
differently according to the correspondence between their personality types
and the types of the occupations presented to them.

CSOS Rep. No. 160   Some Practical Remedies for   John L. Holland
October, 1973   Providing Vocational Guidance
ERIC #   for Everyone
29 pages

   Current vocational guidance services are generally expensive,
impractical, atheoretical and ineffective, failing to reach most people
who want and need guidance and often failing to help those who are
reached. This paper describes some of the current problems of voca-
tional guidance, summarizes relevant knowledge and theory in the field,
and offers some practical plans for helping children, adolescents, and
adults.
   The basic plan for providing more effective guidance is one designed
for high school students. This high school plan can be easily modified
for children, college students and adults.

CSOS Rep. No. 161   An Experimental Study of the   Samuel T. Helms
November, 1973   Reactions of High School Students   Gerald D. Williams
ERIC # CE 000972   to Simulated Jobs
22 pages

   This experiment used a repeated measures design to test some hypoth-
eses about the reaction of high school students to simulated jobs.
Students explored six divergent jobs in random order and gave their
reactions to each job by filling out a standard questionnaire. The results
strongly support some revised formulations of how people react to jobs
(Holland, 1973). The degree of congruency a student experiences between
himself and a standard work simulation usually coincides with the degree
of congruency estimated from a theoretical model. The results are statis-
tically significant and substantial for both girls (N = 92) and boys
(N = 127).

CSOS Rep. No. 163   Student-College Congruency As a   Dean H. Nafziger
December, 1973   Predictor of Satisfaction   John L. Holland
ERIC #   Gary D. Gottfredson
20 pages

Hypotheses about person-environment congruency, consistency, and differentiation from Holland's theory of careers were tested. Subjects were 1878 students from one college and one university who had been given the Self-Directed Search (SDS) before their freshman year followed by a satisfaction questionnaire at one or three years later. Two analyses were conducted. The first was a three-factor MANOVA with school, sex and congruency level as the independent variables. The second was a four-factor MANOVA with school, sex, consistency, and differentiation as independent variables. Three college satisfaction measures were the dependent variables. Statistically significant main effects were found for school, sex, and congruency but not for consistency and differentiation. The results support Holland's congruency hypotheses but not the differentiation and consistency hypotheses.

CSOS Rep. No. 164   A Diagnostic Scheme for   John L. Holland
December, 1973   Specifying Vocational Assistance   Gary D. Gottfredson
ERIC # CE 000 973   Dean H. Nafziger
35 pages

The validity of some theoretically-derived vocational diagnostic signs was examined to learn if a person's self-knowledge, occupational knowledge, and decision-making ability were predictable. Diverse samples of high school juniors (N = 1005), college juniors (N = 692), and employed adults (N = 140) were administered the Self-Directed Search (the source of the diagnostic signs) along with the criteria for validating the signs (The Career Maturity Inventory, a decision-making task, questionnaire items about vocational choice, scales measuring identity, anomy, originality, and interpersonal competency). The signs for good decision-making ability (consistency and differentiation of the SDS profiles) predicted scores on the decision-making task more efficiently than any other signs or variables. In contrast, the signs concerned with self and occupational knowledge had no convergent or discriminant validity. The results for the decision-making signs, however, imply some immediate practical applications and some potentially valuable theoretical investigations.

CSOS Report   A Note about the Validity   John L. Holland
1972   of the Self-Directed Search   Dean H. Nafziger

The scales of the Self-Directed Search (SDS) correlate with the scales of the Kuder, the Thurstone Temperament, the Bennett Mechanical Comprehension Test, and the Minnesota Paper Form Board in predictable ways across three small samples of high school students. The results support the validity of the SDS as well as the hypothetical constructs in Holland's theory.